EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 735

DATE: AUGUST 1, 2019

PROJECT MP0303

The following classification changes will be effected by this Notice of Changes:

Action	**Subclass**	**Group(s)**
SCHEME:		
Titles Changed:	G06F	9/4451
		2009/4557, 2009/45575, 2009/45579, 2009/45583, 2009/45587, 2009/45591, 2009/45595
DEFINITIONS:		
Definitions New:	G06F	9/4451, 9/44552, 9/44563, 9/44568, 9/44578, 9/4482, 9/4496, 9/4498, 9/45525, 9/45529,
		2009/45562, 2009/45566, 2009/4557, 2009/45575, 2009/45579, 2009/45583, 2009/45587, 2009/45591, 2009/45595
Definitions Modified:	G06F	8/34, 8/36, 8/61, 8/65, 8/654, 8/71
		9/4403, 9/4492, 9/451, 9/455, 9/45558

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following *[Check the ones included]:*

1. CLASSIFICATION SCHEME CHANGES
   - ☒ A. New, Modified or Deleted Group(s)
   - ☐ B. New, Modified or Deleted Warning(s)
   - ☐ C. New, Modified or Deleted Note(s)
   - ☐ D. New, Modified or Deleted Guidance Heading(s)
2. DEFINITIONS
   - ☒ A. New or Modified Definitions (Full definition template)
   - ☐ B. Modified or Deleted Definitions (Definitions Quick Fix)
3. ☐ REVISION CONCORDANCE LIST (RCL)

4. ☐ CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)
5. ☐ CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

G06F - ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)

Type*	**Symbol**	**Indent Level Number of dots (e.g. 0, 1, 2)**	**Title (new or modified) "CPC only" text should normally be enclosed in {curly brackets}****	**Transferred to#**
M	G06F 9/4451	5	{User profiles; Roaming}	
M	G06F 2009/4557	6	{Distribution of virtual machine instances; Migration and load balancing}	
M	G06F 2009/45575	6	{Starting, stopping, suspending or resuming virtual machine instances}	
M	G06F 2009/45579	6	{I/O management, e.g. providing access to device drivers or storage}	
M	G06F 2009/45583	6	{Memory management, e.g. access or allocation}	
M	G06F 2009/45587	6	{Isolation or security of virtual machine instances}	
M	G06F 2009/45591	6	{Monitoring or debugging support}	
M	G06F 2009/45595	6	{Network integration; Enabling network access in virtual machine instances}	

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T= existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- **No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required "anchor" symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups).Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- "Transferred to" column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.

- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “< administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY, ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD> , <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalisation projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

2. A. DEFINITIONS (new)

Insert: The following new Definitions:

G06F 9/4451

Definition statement

Roaming user profiles; migrating configuration settings between computers.

References

Informative references

Network-specific arrangements/protocols involving user profiles	H04L 67/306

G06F 9/44552

Definition statement

Mechanisms to allow e.g. different versions of conflicting libraries to be used simultaneously; for example the Windows "DLL Hell".

G06F 9/44563

Definition statement

This place covers:

- Sharing program code/data between different applications in order to reduce the memory footprint;
- Solutions to problems that arise when program code/data is shared (e.g. sharing of global variables and Java static fields), often resulting in the duplication of program code/data.

G06F 9/44568

Definition statement

Running programs without having to install or load them beforehand. Execute-in-place refers to running without loading (i.e. without copying to RAM), while portable applications more refer to running without installing.

G06F 9/44578

Definition statement

Specific techniques to make code immediately runnable, e.g. making address adjustments (relocation) to enable immediate execution, or prebinding (Mac OS). General aspects of pre-runtime link editing are however classified in G06F8/54.

G06F 9/4482

Definition statement

Relates to procedural execution, i.e. imperative programming where the program is built from one or more procedures (subroutines).

G06F 9/4496

Definition statement

Unification is one of the main ideas behind logic programming, best known through the language Prolog. It represents the mechanism of binding the contents of variables and can be viewed as a kind of one-time assignment.

G06F 9/4498

Definition statement

Program execution implemented by a Finite State Machine. There must be enough technical details about the FSM implementation to allocate the subgroup.

G06F 9/45525

Definition statement

Optimisations carried out at runtime without changing the instruction set architecture.

G06F 9/45529

Definition statement

This place covers:

Conversions or optimisations, e.g. done by JavaScript engines or similar plugin technologies built into another execution environment.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Dynamic loading of plugins/add-ons	G06F 9/44526

G06F 2009/45562

Definition statement

Handling single instantations of virtual machines, e.g. creation from template or copy of another instance.

G06F 2009/45566

Definition statement

Virtual machines running within other virtual machines.

G06F 2009/4557

Definition statement

Managing the placement of virtual machine instances.

G06F 2009/45575

Definition statement

Specifics about start/stop in the context of virtual machines.

References

Informative references

Program initiating	G06F 9/445
Task life-cycle in general	G06F 9/485

G06F 2009/45579

Definition statement

Specifics about input/output within virtual machines, e.g. accessing storage, or external devices, using specific drivers.

References

Informative references

Loading of device drivers	G06F 9/4411
Internal functioning of device drivers	G06F 13/102

G06F 2009/45583

Definition statement

Specifics about memory management within virtual machines, e.g. accessing and allocating memory.

References

Informative references

Memory management in general	G06F 12/00
Allocation of memory to service a request	G06F 9/5016

G06F 2009/45587

Definition statement

Mechanisms to isolate virtual machine instances from other instances; protection of virtual machines.

References

Informative references

Security arrangements in general	G06F 21/00

G06F 2009/45591

Definition statement

Specifics to enable monitoring or debugging within virtual machines.

References

Informative references

Monitoring and debugging in general	G06F 11/30, G06F 11/36

G06F 2009/45595

Definition statement

Specifics to enable network access of virtual machines.

References

Informative references

Network-specific arrangements for supporting networked applications	H04L 67/00
Network virtualisation	H04L 12/4641

2. A. DEFINITIONS (modified)

Insert: The following changes into the existing Definitions:

G06F 8/34

Definition statement

Replace: The existing Definition statement with the following new statement:

P programming techniques whereby a program is created by handling graphical programming objects representing programming constructs/statements rather than writing program text.

References

Delete: The entire Limiting references section.

Informative references

Insert: The following four new rows into the Informative references table:

Use of icons for interaction	G06F3/048
Intelligent editors	G06F8/33
Development of GUIs, User Interface Management Systems (UIMS)	G06F8/38
Web page development	G06F16/95

G06F 8/36

Definition statement

Insert: The following new bullet point at the end of the existing list of bullet points within the Definition statement:

- Using APIs and interfaces, e.g. for components, to make software reusable.

References

Delete: The entire Limiting references section.

Informative references

Insert: The following three new rows in the Informative references table:

Exlining, i.e. finding similar sequences of code to replace them with a procedure invocation	G06F 8/4436
Version control using repositories	G06F 8/71
Code clone detection, i.e. detection of identical pieces of code for the purpose of maintenance	G06F 8/751

G06F 8/61

Definition statement

Insert: Bullet points in front of the existing Definition statement, as well as periods after those portions of the statement that are missing periods, so that the section reads as follows:

- First-time installation of software.

- Unattended installation, installation scripts (answer file).
- Network installation.
- Installation packages (containing list of files, program image, files itself, install/update instructions).
- Network installation plans.
- Type of installations.
- Silent installation - no display of the progress of the installation.
- Unattended installation - installation performed without user interaction.
- Self installation - unattended installation without the need of initial launch of the process.
- Headless installation - installation performed without using a monitor connected to the destination computer.
- Clean installation - cleaning up a destination partition (formatting) before actual installation.
- Flat installation - first copying installation files from a media to a hard disk and then installing them from the hard drive.
- Network installation - installation of a program from a shared network drive.
- Virtual installation - performing a virtual installation to check for errors before committing the real installation.

References

Delete: The entire Limiting references section**.**

Insert: The following new Informative references section:

Informative references

Attention is drawn to the following places, which may be of interest for search:

Loading of device drivers	G06F 9/4411

G06F 8/65

Definition statement

Insert: Bullet points in front of the existing Definition statement so that it reads as shown below:

- Updating of existing software, i.e. modifying already installed software to a desired version.
- Being informed of new software that has become available in order to update including installation for the update.
- Synchronization of software of disconnectable devices after their reconnection to the network automatically upgrading software to the correct version.
- Transparent update (e.g. after boot, after update becomes available, regular check for updates,…)
- User-initiated update.

References

Limiting references

Replace: The existing table rows with the following new single row so the Limiting references table reads as follows:

Security arrangements therefor	G06F 21/57

Application-oriented references

Insert: The following new table row into the Application-oriented references table:

Scheduling of updates for software modules stored at the client	H04N 21/26291

Insert: The following new Informative references section:

Informative references

Attention is drawn to the following places, which may be of interest for search:

Error handling during software upgrade	G06F 11/1433
Synchronizing caches	G06F 12/00
Replication of documents/files	G06F 16/184
Software upgrading/downloading on mobile terminals	H04M 1/72525

G06F 8/654

References

Informative references

Insert: The following new row into the Informative references table:

Secure firmware programming	G06F 21/572

G06F 8/71

Definition statement

Replace: The second paragraph in the existing Definition statement with the following revised paragraph:

Includes in particular:

- Make, Build
- Analysing changes to/conflicts between sources
- SCCS-like tools
- Dependency analysis
- Comparing/obtaining dates of last changes of sources/intermediates/targets;
- CVS - Concurrent Version Control, SVN, GIT, ...

References

Limiting references

Replace: The existing Limiting references table with the following new table that features only a single row:

Security arrangements therefor	G06F 21/57

Insert: The following new Informative references section:

Informative references

Attention is drawn to the following places, which may be of interest for search:

Dependency analysis in compilers	G06F 8/433
Dealing with different versions of software in the context of software updating	G06F 8/65, G06F 8/658
Configuration of peripheral devices	G06F 9/4411
Configuration in the sense of changing parameters	G06F 9/44505
Version control for text documents	G06F 17/2288

G06F 9/4403

Definition statement

Delete: The text “(see also G06F 9/4416)” from the fourth bullet point in the Definition statement so that the bullet point now reads as follows:

- I/O channel initialisation;

References

Delete: The entire Limiting references section.

Insert: The following new Informative references section:

Informative references

Attention is drawn to the following places, which may be of interest for search:

Loading microcode per se	G06F 9/24
Configuring of multiprocessors	G06F 15/177

G06F 9/4492

Definition statement

Replace: The existing Definition statement with the following revised statement:

Object oriented class hierarchies including run-time addition of classes to a hierarchy virtual inheritance and/or polymorphism.

Special rules of classification

Replace: The phrase “should be given” with the phrase “is justified” at the end of the Special rules of classification section so that the text reads as follows:

Documents in G06F9/449 deal with Object-oriented method invocation and will inevitably talk about class hierarchies, which is the subject of G06F9/4492. However, this alone does not justify classification in G06F9/4492: only when the document discloses specific details about class hierarchies, the symbol G06F9/4492 is justified.

G06F 9/451

Definition statement

Insert: Bullet points in front of the existing Definition statement so that it reads as follows:

- The inner working of user interfaces, in particular graphical user interfaces (GUIs), including:

- Interaction of the GUI with applications and OSs
- The structure and interaction of software components of GUIs
- Implementation of GUI concepts typically used in operating systems, e.g. desktop metaphors, widgets or windowing mechanisms
- Implementation of GUI automation mechanisms, e.g. record/replay of user interactions on the GUI

References

Informative references

Insert: The following new row into the Informative references table:

User interfaces for portable communication terminals, e.g. mobile phones	H04M 1/72519

G06F 9/455

Definition statement

Delete: The words “(see glossary)” from the Definition statement so that the statement reads as follows:

The emulation of entities, e.g. operating systems, processors, classified under G06F9/00.

References

Delete: The entire Limiting references section.

Insert: The following new Informative references section:

Informative references

Attention is drawn to the following places, which may be of interest for search:

In-circuit emulation	G06F 11/36

Dynamic binary instrumentation may use techniques similar to emulators and binary optimizers	G06F 11/3644
Virtual memory	G06F 12/00
Terminal emulation	G06F 13/105
Computer simulation, in which a model of a system under investigation is beng simulated	G06F 17/50

G06F 9/45558

Definition statement

Delete: The phrase “Relates to specific,” capitalize the word “management,” and insert bullets points so that the Definition statement reads as follows:

- Management and integration aspects of hypervisors.
- Functions needed to manage virtual machines or to integrate them into the execution environment that are specific to a hypervised system, e.g. handling of virtual machine instances, creating, cloning, deleting instances, starting and stopping virtual machines, distributing and migrating instances, managing I/O and storage access, isolating virtual machines for security reasons, managing memory of instances.

Insert: The following new Special rules of classification section:

Special rules of classification

The following CPC breakdown codes are used for refined classification. Please also consider classification in the main trunk symbols referenced by the breakdown codes.